

1.0 PURPOSE AND NEED FOR ACTION

This section provides a brief historical background of the United States (U.S.) space effort and Federal policy leading to the proposed development and operation of a facility in New Mexico for launching commercial space vehicles. It also discusses the legislative and regulatory context for commercial space activity, initiatives undertaken by the State of New Mexico, and the underlying purpose of and need for licensing of the proposed Southwest Regional Spaceport (SRS) by the U.S. Department of Transportation (DOT), Federal Aviation Administration (FAA).

1.1 BACKGROUND

Since 1958, the United States has made notable achievements in space. Although most of the U.S. space program has been implemented by the Federal government for civil and national security purposes, principally through the National Aeronautics and Space Administration (NASA) and Department of Defense, the private industrial sector has played a significant role. Examples of historic space program achievements are

- 11/11/45—First research rocket launched from White Sands Missile Range reached an altitude of 43 miles.
- 5/10/46—First successful V-2 launched from White Sands Missile Range reached an altitude of 72 miles.
- 01/31/58—Explorer I launched into Earth orbit, the first U.S. satellite.
- 05/05/61—MR-3 (Freedom 7) launched with Alan Shepard, the first American in space.
- 02/20/62—MA-6 (Friendship 7) launched with John Glenn, the first American in Earth orbit.
- 07/10/62—Telstar I, first commercially funded communications satellite.
- 03/23/65—Gemini III launched with Grissom and Young, first U.S. two-person crew.
- 10/11/68—Apollo 7 launched with Schirra, Cunningham, and Eisele, first U.S. three-person crew.
- 07/20/69—Apollo 11 landed in the Sea of Tranquility, Armstrong took first step on the Moon.
- 1/31/71—Apollo 14 launched, in addition to third manned moon landing, conducted research on separation of complex molecules in microgravity.
- 11/03/71—Mariner 9 entered Mars orbit, first American space probe to orbit another planet.

- 5/14/73—Skylab space station placed in orbit. Three crews later conducted extensive research including material processing in microgravity.
- 2/22/78—First experimental global positioning system satellite placed in orbit.
- 4/12/81—First Space Shuttle launch.
- 3/29/89—First U.S. commercial space launch—Starfire suborbital vehicle from White Sands Missile Range, New Mexico.
- 4/30/96—50th successful U.S. commercial space launch.

The SRS concept is based on the February 11, 1988, *White House Directive on National Space Policy* that directed Federal departments to encourage the private sector in developing commercial space facilities. In 1989, NASA issued the *National Space Policy Directives and Executive Charter* (NASA 1989) that established policies for civil, national security, and commercial space sectors. The commercial space policy statement encouraged expansion of private sector investment by the market-driven commercial sector as a means of generating economic benefits for the U.S. and supporting governmental space sectors through an increased range of goods and services. The National Space Policy Directive 3, *U.S. Commercial Space Policy Guidelines* issued by the White House in February 1991, identified five commercial space market sectors—satellite communications, launch and vehicle services, remote sensing, materials processing, and commercial infrastructure. The National Space Policy Directive 4, *National Space Launch Strategy* issued by the White House on July 10, 1991, included as a key element the active consideration of commercial space launch needs in making decisions on improvements in launch facilities and launch vehicles.

1.1.1 LEGISLATIVE AND REGULATORY CONTEXT

The Commercial Space Launch Act (CSLA) was enacted on October 30, 1984, as Public Law 98-575 (49 U.S. Code (U.S.C.) app. 2601 *et seq.*). The Act was codified on July 5, 1994, by Public Law 103-272 (49 U.S.C. §70101-70119).

The CSLA authorizes DOT to license, coordinate, and oversee commercial launch operations. It also mandates that a license is necessary to operate a commercial space launch site in the U.S. or for a U.S. citizen to operate a launch site abroad. The Congressional findings in the CSLA include

- The peaceful uses of outer space are of great value and benefit to all mankind.

- 1 • U.S. private sector interests are capable of developing and providing private satellite launching
- 2 services that complement Federal government launch and associated services.
- 3 • Development of commercial launch vehicles and associated services will enable the U.S. to
- 4 retain a competitive international position, contributing to national and economic well-being.
- 5 • Space transportation, including the establishment and operation of launch sites, is an important
- 6 element of the U.S. transportation system.
- 7 • Participation of state governments in encouraging and facilitating private sector involvement
- 8 in space-related activity is in the national interest.

9 Under the CSLA, the role of DOT is to encourage, facilitate, and promote commercial space launches
10 by the private sector; take actions to facilitate private sector involvement in commercial space
11 transportation activity; and promote public-private partnerships to build and operate a space launch
12 infrastructure. DOT also is charged with protecting public health and safety, safety of property, and
13 national security and foreign policy interests of the U.S. DOT's licensing authority over launches and
14 operation of launch sites is carried out consistent with that charge. Thus, for the purposes of this
15 environmental impact statement (EIS), the proposed "Federal action" is the licensing of SRS to operate
16 a commercial launch site in the United States, and the completion of a review to ensure the safe and
17 efficient utilization of airspace.

18 DOT's authority under the CSLA is exercised through the FAA office of the Associate Administrator
19 for Commercial Space Transportation (FAA/AST). Licensing regulations are contained in Code of
20 Federal Regulations Title 14, Chapter III, Parts 400 through 415 (14 CFR 400-415) (53 FR (*Federal*
21 *Register*) 11004, April 4, 1988). The regulations define a "launch" as "to place, or attempt to place, a
22 launch vehicle and/or payload in a suborbital trajectory, in Earth orbit in outer space, or otherwise in
23 outer space." "Licensee" means an entity authorized by a license to conduct specified commercial
24 launch activities and to be responsible for doing so in conformance with the applicable requirements
25 (14 CFR §401.5). These regulations govern, among other things, license applications, safety and mission
26 approvals required for a launch license, license issuance and conditions, and review of environmental
27 impacts of launch activities. Initially, licensing authority was vested in the DOT Office of Commercial
28 Space Transportation (OCST). Effective November 15, 1995, the Secretary's authority was delegated
29 to the FAA administrator, who, in turn, delegated this authority to the FAA Associate Administrator
30 for Commercial Space Transportation (FAA/AST) (60 FR 62762).

1.1.2 SRS FEASIBILITY STUDY PROCESS

In 1992, Congress authorized NASA to commission a feasibility study for establishing a commercial space launch and recovery facility in the southwestern U.S. The study, conducted by New Mexico State University's Physical Science Laboratory (NMSU/PSL), was not restricted in scope or focus to New Mexico locations. Several locations throughout the southwestern U.S. and northern Mexico were examined in terms of topology, population density (public safety), environment, and infrastructure. Results of the NASA study were published in the *Southwest Regional Spaceport (SRS) Technical Feasibility Report and Strategic Development Plan* (NMSU 1995). This NMSU study concluded that the establishment of a commercial space activity in the Southwest was technically and commercially feasible.

In a parallel effort, the U.S. Air Force (USAF) funded multiple feasibility studies in 1993 under the Dual Use Infrastructure Grant Program (Grant I) that focused on prospective commercial space facilities in different locations throughout the U.S. Results of the USAF Grant I study for the southwestern region of the U.S. were published in the *Dual Use Launch Facility Grant Requirements Study for the Southwest Regional Spaceport* (NM 1995a).

According to the Grant I technical report (NM 1995a), development of the SRS would have these characteristics

- operation as a for-profit enterprise without State or Federal subsidies
- operation in an airport-like manner to attract and service commercial customers
- location presenting favorable launch and spaceflight operation conditions
- flexibility to expand in order to accept new customers and adapt to changing requirements
- ability to service and expand the aerospace business in New Mexico with accompanying economic development opportunities

Both NMSU (1995) and NM (1995a) concluded that an SRS in New Mexico would provide basic facilities for overall operations and systems coordination of commercial launches. Individual launch program operators would provide their own support facilities. In other words, the SRS would be a public, New Mexico-owned facility within which individual companies engaged in commercial space launch enterprises would function. The specific SRS site proposed for evaluation within this document (Subsection 2.1.4, beginning on page 35) evolved from the individual NASA and USAF funded studies of multiple candidate sites conducted under their respective grant requirements. The spaceport siting

process leading to the selection of the proposed SRS site is discussed in detail in Subsection 2.1.3, beginning on page 26.

1.1.3 NEW MEXICO INITIATIVES

In February 1994, the New Mexico legislature passed House Bill Number 506 as the *Spaceport Development Act of 1994* (§§9-15-42 to 9-15-47 New Mexico Statutes Annotated [NMSA] 1978). The Act, amended by Senate Bill 1076 in 1995, created the New Mexico Office of Space Commercialization (NMOSC) as a division of the New Mexico Economic Development Department (NMEDD) (§9-15-44 NMSA 1978). It also established a Spaceport Commission to be administered by the NMEDD. Duties of the Commission include promoting space-related activities and advising and assisting the NMEDD in matters concerning the development, construction, and acceptance of a regional spaceport in New Mexico. Under Senate Bill 1076, the NMOSC is charged with managing all aspects of the New Mexico space program, coordinating the promotion and marketing of New Mexico space-related resources, cooperating with and supporting the Spaceport Commission, and fulfilling the purposes of the Spaceport Development Act.

In June 1995, the State of New Mexico's Governor's Technical Excellence Committee (GTEC) published a *Spaceport Task Force Feasibility Study* report (NM 1995b). The report concluded that New Mexico has “many advantages” and a location contiguous to the White Sands Missile Range (WSMR) would make an “attractive site for spaceport development.” The advantages of a New Mexico location include higher launch elevation, reasonable latitude for equatorial launches, a history of space experience, a core contingent of the aerospace industry, nearby scientific expertise and universities, easy access to a relatively remote area, and a large land area with sparse population.

The NM (1995b) report also concluded that only orbital reusable launch vehicles (RLVs) have the potential to generate the level of economic activity necessary to justify the significant expenditures (\$80 million to \$120 million minimum) to build the infrastructure for a commercial spaceport. Thus, construction of the proposed SRS can proceed only if it has one or more economically and technically viable RLV customers. It is NM (1995b) that forms the basis for the proposal analyzed in this EIS.

1.2 PURPOSE AND NEED

The purpose of granting an FAA/AST license to operate the proposed SRS is to contribute toward fulfilling the mandate of the CSLA by encouraging, facilitating, and promoting the establishment of a competitive U.S. commercial space transportation industry. The proposed SRS provides the nation with a unique opportunity to carry out this mission. Complementary purposes of the proposed SRS licensing are to

- Allow cooperative effort by the public and private sectors to develop a spaceport facility capable of meeting expanding commercial space utilization needs.
- Conform to FAA/AST environmental, safety, range, facility, and operations requirements necessary to permit development and operation of a multi-vehicle spaceport suitable for a wide range of operations.
- Implement the design, systems development, construction, and operations required for proposed SRS.

The underlying need for the proposed SRS is to develop, license, and operate an inland spaceport in New Mexico from which to launch and recover commercial space vehicles that would be used to fulfill a wide range of scientific and industrial missions. A correlated need is to enhance economic development opportunities in New Mexico through the generation of aerospace activities associated with the proposed SRS.

The proposed action and alternatives which would fulfill the underlying need and to which the FAA/AST is responding are discussed in detail in Section 2.0.

The bases for the preparation of this EIS are contained in

- National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. §4321 *et seq.*)
- Council on Environmental Quality (CEQ) *Regulations on Implementing National Environmental Policy Act Procedures* (40 CFR Parts 1500-1508)
- Office of Commercial Space Transportation (OCST, now FAA/AST), Department of Transportation (DOT) regulations in 14 CFR Part 415, Subpart D, on Environmental Impacts of Launch Activities

- 1 • OCST *Guidelines for Compliance with the National Environmental Policy Act and Related Environmental*
2 *Review Statutes for the Development of Commercial Space Launch Sites* (OCST-RD-ENVOI-95, Revised
3 May 1995)
- 4 • DOT Order 5610.1C, *Procedures for Considering Environmental Impacts*
- 5 • DOT, Federal Aviation Administration (FAA) *Airport Environmental Handbook*, FAA Order
6 5050.4A (October 1985)
- 7 • *Policies and Procedures for Considering Environmental Impacts*, FAA Order 1050.1D (December 5,
8 1986)
- 9 • U.S. Department of the Interior, Bureau of Land Management (BLM), Las Cruces District
10 Office, New Mexico, *White Sands Resource Area Final Resource Management Plan Environmental Impact*
11 *Statement* (September 1985) (BLM 1985)
- 12 • U.S. Department of the Interior, Bureau of Land Management, Las Cruces District Office, New
13 Mexico, *Mimbres Resource Management Plan* (December 1993) (BLM 1993)
- 14 • State of New Mexico House Bill No. 506, Spaceport Development Act of 1994 (February 1994)

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